

10. (New) A device for determining the concentration of one or more substances in a mixture by measuring the concentration-dependent molecule-specific extinction of radiation, comprising:

an absorption chamber filled with the sample to be measured;

a radiation source;

two, or a number divisible by two of, receivers, one pair of receivers being associated with the measurement of the concentration of each component of the mixture;

a device for splitting the radiation from the radiation source into two, or a number divisible by two of, radiation paths to the receivers, all radiation paths from the radiation source to the receivers traversing the same number and pairwise identical optical elements and the substance in the absorption chamber, and the two radiation paths leading to a pair of receivers each having a different optical length in the absorption chamber;

a device for measuring the extinction in the two radiation paths leading to a pair of receivers at the same wavelength; and

a device for determining the measured value or values by comparison of the intensities measured by the receivers of a pair, wherein

for splitting the radiation from the radiation source, two concave mirrors associated with a pair of receivers are provided which focus the radiation arriving from the radiation source onto the receivers, said two concave mirrors associated with a pair of receivers being disposed at different distances from the radiation source

to form radiation paths of different lengths in the
absorption chamber.

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11. (New) The device of Claim 10, wherein at least
one of said two concave mirrors associated with a pair of
receivers is formed as an aspheric concave mirror.

12. (New) The device of Claim 10, wherein said
aspheric concave mirror constitutes a section of a
spheroid.

13. (New) The device of Claim 10, wherein the
radiation source is an electrically modulable plane
radiator.

14. (New) The device of Claim 10, wherein the
absorption chamber is formed by an interior of a housing
and said concave mirrors are formed integrally with the
housing.

15. (New) The device of Claim 14, wherein said
housing is of partite form and said concave mirrors are
formed integrally with a housing part.

16. (New) The device of Claim 15, wherein said
housing comprises a first housing part with said concave
mirrors and a second housing part on which the radiation
source and the receivers are disposed.

17. (New) The device of Claim 16, wherein at least
said first housing part with the concave mirrors is made
of metal.

18. (New) The device of Claim 16, wherein said
first housing part is made from aluminum.

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